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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO.               |
|--|-------------|----------------------|---------------------|--------------------------------|
| 10/080,657   | 02/25/2002  | Yoshihiro Ariyama    | 32014-178508        | 1714                           |
| 7590   | 10/24/2003  |                      |                     |                                |
| Venable<br>P.O. Box 34385<br>Washington, DC 20043-9998 |             |                      |                     | EXAMINER<br>SINGH, RAMNANDAN P |
|  |             |                      | ART UNIT<br>2644    | PAPER NUMBER                   |

DATE MAILED: 10/24/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                 |                    |
|------------------------------|---------------------------------|--------------------|
| <b>Office Action Summary</b> | Application No.                 | Applicant(s)       |
|                              | 10/080,657                      | ARIYAMA, YOSHIHIRO |
|                              | Examiner<br>Dr. Ramnandan Singh | Art Unit<br>2644   |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 25 February 2002.

2a) This action is **FINAL**.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-12 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-12 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 25 February 2002 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) Notice of References Cited (PTO-892)  
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.

4) Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.  
5) Notice of Informal Patent Application (PTO-152)  
6) Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Claim 1 recites a limitation “**a plurality of adaptive filters**” on page 14, line 5. Only one adaptive filter 102 has been shown, the plurality of adaptive filters are not shown. In addition , Claim 1 recites a limitation “**an evaluator**” on page 14, line 7. The evaluator is not shown. Claim 3 recites a limitation “**is above a predefined threshold**” on page 14, lines 18-19. **A comparator with this threshold** is not shown. A similar thing holds for Claims 4, 8, 9. Therefore, the above features must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings filed on 25 February 2002 are acceptable subject to correction of the informalities indicated on the attached “Notice of Draftsperson's Patent Drawing Review,” PTO-948. In order to avoid abandonment of this application, correction is required in reply to the Office action. The correction will not be held in abeyance.

***Priority***

3. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The priority paper in Japanese has been received.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 recites a limitation "**an evaluator coupled to said adaptive filters for grouping coefficients into a plurality of segments**" on page 14, lines 7-8. The disclosure provides insufficient information on accomplishing the above function by the evaluator.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4, 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kusano [US 5,477,534].

Regarding Claim 1, Kusano teaches an acoustic echo canceller shown in Figs. 1, 15, 20, comprising a variable coefficient digital filter 3 for generating an artificial echo (i.e. echo replica) [col. 1, lines 26-35]; an evaluator using a comparator 43 [col. 12, lines 53-63], and a coefficient block selector (i.e. coefficient controller) wherein a variable coefficient series is divided into blocks [Fig. 3, col. 5, lines 6-45; Fig. 8, line 53 to col. 7, line 23; Fig. 15, col. 9, lines 9-67].

Claim 7 is essentially similar to Claim 1 and is rejected for the reasons stated above apropos of Claim 1.

Regarding Claims 2, 8 see Fig. 20.

Regarding Claims 3-4, Kusano teaches a coefficient power comparator 43 using pre-determined threshold  $S_n$  ( $n=0, 1, 2, \dots$ ) [Fig. 20; col. 12, lines 49-61; col. 13, lines 35-46; col. 16, lines 56-63].

Claims 9-10 are essentially similar to Claims 3, 4 respectively and are rejected for the reasons stated above apropos of Claims 3-4.

8. Claims 1, 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Hasegawa [US 6,035,312] or Ishii et al [US 5,960,077].

*As per Claim 1:*

Hasegawa teaches an echo canceller for generating an echo replica  $\hat{y}(t)$  and for subtracting the echo replica from a local input signal  $y(t)$  to create a residual signal  $e(t)$  for outgoing transmission shown in Fig. 1 [Abstract] , comprising:  $m$  filter circuits , a matrix switch 105, an adder 104, and a controller 106 [col. 3, line 51 to col. 4, line 2], wherein controller 106 monitors (i.e. evaluates) information about the filter coefficients of the filter circuits and performs grouping of filter coefficients into effective blocks (i.e. input blocks connected to filter circuits) and ineffective blocks (i.e. input blocks not connected to filter circuits). Next, the controller performs selection or exchange of effective and ineffective blocks [col. 4, line 29 to col. 6, line 18; col. 2, line 22 to col. 3, line 14].

Ishii et al teaches an echo canceller comprising: multiple adaptive FIR filters 51b to 5nb shown in Fig. 1 generating echo replicas and residual signals [col. 1, lines 26-38; col. 3, lines 16-42; col. 6, lines 23-51]; signal detectors monitoring (i.e. evaluating) a signal state of each channel [col. 3, lines 54-57; col. 10, lines 16-26] and storing filter coefficients into a plurality of blocks [Abstract]; and adaptive operation control units (i.e. filter coefficient controllers) generating selection signals, outputting to

the plurality of filter coefficient update circuits, and selecting filter coefficients using block selecting section 55z [Fig. 6; col. 3, line 58 to col. 4, line 42; col. 11, lines 23-35].

Claim 7 is essentially similar to Claim 1 and is rejected for the reasons stated above apropos of Claim 1.

9. (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
10. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Sugiyama [US 6,442,274 B1].

Regarding Claim1, Sugiyama teaches an echo canceller shown in Fig. 1, comprising: adaptive filters 80, 81, 82; an input signal evaluator 170 [Fig. 10]; a coefficient value evaluator 120 [Fig. 8]; and a controller 70 [col. 4, lines 36-65; col. 14, line 61 to col. 15, line 4; col. 15, line 16 to col. 16, line 5; col. 17, lines 6-10].

#### ***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kusano as applied to Claim 1 above, and further in view of Norrell et al [US 5,892,757].

Regarding Claim 5, Kusano does not teach expressly using a supervisor for monitoring a computation overflow.

Norrell et al teaches applying a supervisor 20 shown in Fig. 1 to provide high-level control over a digital communications system [Figs. 1, 2; col. 5, lines 55-57; col. 6, lines 5-13].

Kusano and Norrell et al are analogous art because they are from a similar problem solving area, viz. , echo cancellation in communications.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the supervisor of Norrell et al with the echo canceller system of Kusano.

The suggestion/motivation for doing so would have been to provide an effective echo cancellation for a digital communications system at higher speeds over voice-grade [Norrell et al; col. 1, lines 17-21].

Claim 11 is essentially similar to Claim 5 and is rejected for the reasons stated above apropos of Claim.

13. Claim 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa as applied to Claim above, and further in view of Norrell et al [US 5,892,757].

Regarding Claim 6, Hasegawa teaches an echo canceller system comprising: **m filter circuits , a matrix switch 105**, an adder 104, and a controller 106 [col. 3, line 51 to col. 4, line 2], wherein he can apply any number of filter circuits as needed to control a computational overflow and performance. Hasegawa , however, does not teach expressly using a supervisor for monitoring a computational flow.

Norrell et al teaches applying a supervisor 20 shown in Fig. 1 to provide high-level control over a digital communications system [Figs. 1, 2; col. 5, lines 55-57; col. 6, lines 5-13].

Hasegawa and Norrell et al are analogous art because they are from a similar problem solving area, viz. , echo cancellation in communications.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the supervisor of Norrell et al with the echo canceller system of Hasegawa..

The suggestion/motivation for doing so would have been to provide an effective echo cancellation for a digital communications system at higher speeds over voice-grade [Norrell et al; col. 1, lines 17-21].

Claim 12 is essentially similar to Claim 6 and is rejected for the reasons stated above apropos of Claim 6.

### ***Conclusion***

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Ramnandan Singh whose telephone number is (703)308-6270. The examiner can normally be reached on M-F(8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester Isen can be reached on (703)-305-4386. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)306-0377.

Dr. Ramnandan Singh  
Examiner  
Art Unit 2644



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